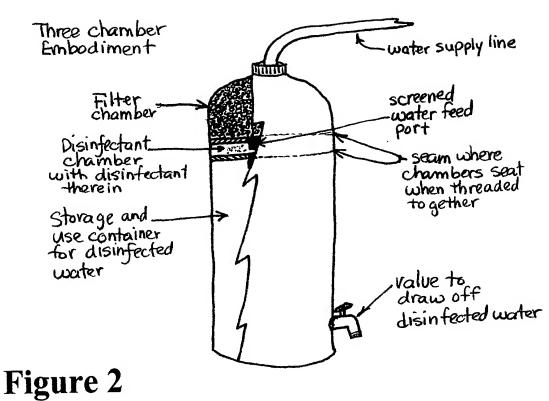
Figure 1



Two Chamber Embodiment

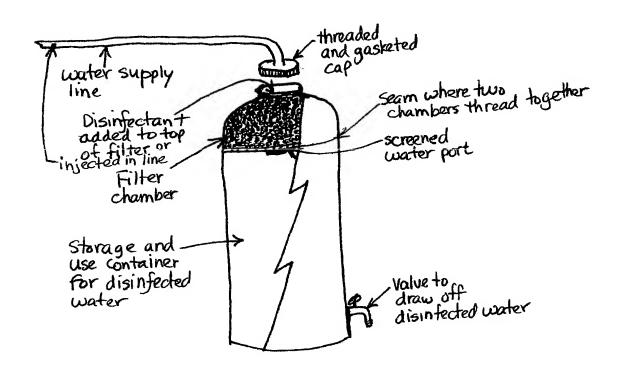


Figure 3

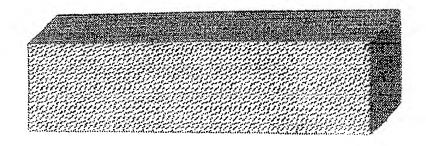
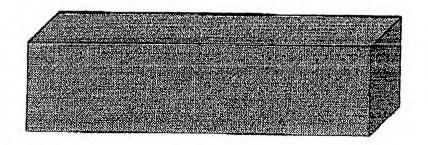


Figure 4



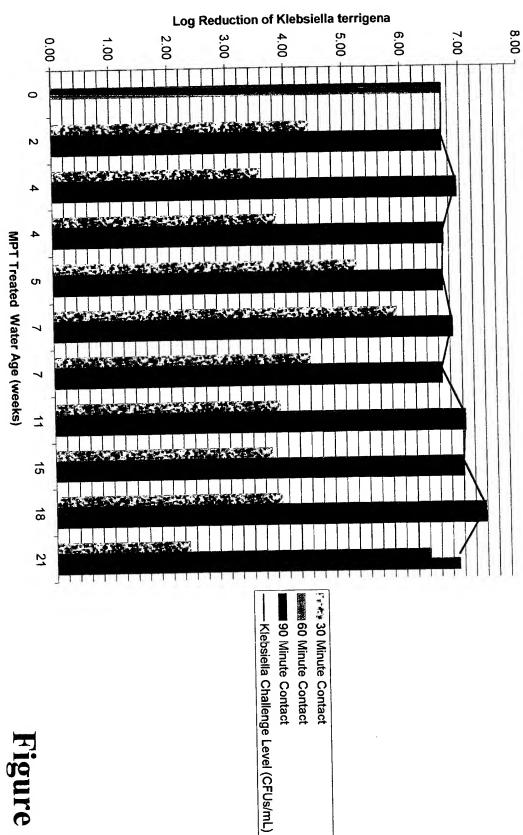


Figure 5

Filename: Residual Study Summary Version1.xls Filedate: August 8, 2003

Results in Scientific Notation: No results excluded

Figure 6A

duded					Kiebsiella t		
	•			Run Results - CFL		ntact time (r	nin)
Run Date	MPT "age" (weeks)	MPT Run #	Sample #	Challenge Dose	T30	T60	T90
31-Mar-03	0	10	2	5.0 x 10^6		0	
OT MALE			3			0	
15-Apr-03	2	13	4	4.9 x 10^6	2.5 x 10^2		0
107,01-00			5		1.4 x 10^2	0	0
30-Apr-03	4	15	4	8.7 x 10^6	2.4 x 10^3	0	0
30-701-00			5		2.3 x 10^3	0	0
2-May-Q3	4	16	4	5.0 x 10^6	9.9 x 10^1	0	0
2-1410y-Q3			5		5.3 x 10 ³	00	0
6-May-03	5	17	4	4.8 x 10^6	4	0	0
0-way-00			5		2.1 x 10^2		0
20-May-03	7	20	4	6.9 x 10^6	1	0	0
ZUNIZYOU			5		8.4 x 10^1	0	0
29-May-03	7	21	4	4.5x 10^6	1.4 x 10^2	0	0
25-Way-05			5		2.3 x 10^2	0	0
17-Jun-03	11	22	4	1.1 x 10^7	8.5 x 10^2		0
17-5011-00	 		5		2.7 x 10^3		. 0
15-Jul-03	15	24	4	1.0 x 10^7	8.6 x 10^2	0	0
13-001-05	 		5		4,4 x 10^3		0
7-Aug-03	18	29	6	1.2 x 10^7	8.7 x 10^2	2.0 x 10^1	0
7-Aug-00	<u>-</u>		7	2.4 x 10^7	3.0 x 10^3	11	0
25 Aug 02	21	32	5	8.0 x 10^6	6.1 x 10 ⁴	8	0
25-Aug-03	 		6		2.9 x 10^4	0	0
	 	 	† <u>-</u> -				
	 		1				
	 	 	1				
	 	 					

Note: 7 Aug 03 sample #7 was challenged at 2X dose of #6 samp

Results in Number Format No results excluded

duded					(lebsiella te		
				Run Results - CFU:			nin)
Run Date	MPT "age" (weeks)	MPT Run #	Sample #	Challenge Dose	T30	T60	T90
15-Apr-03	2	13	4	4,900,000	250	0	
10-7401-00			5		140	0	
30-Apr-03	4	15	4	8,700,000	2,400	0	
307401 00			5		2,300	0	
2-May-03	4	16	4	5,000,000	99	0	
Z-Widy CO			5		5,300	0	
6-May-03	5	17	4	4,800,000	4	0	
O-Midy Co			5		210	54	
20-May-03	7	20	4	6,900,000	1	0	
20-11/07-00			5		84	0	
29-May-03	7	21	4	4,500,000	140	0	
20 10107 00			5		230	0	
17-Jun-03	11	22	4	11,000,000	850	0	
17-0411 90					2,700	0	
15-Jul-03	15	24		10,000,000	860	0	
10 001 00				i	4,400	1	
7-Aug-03	18	29	(12,000,000	870	20	
, -, -, -, -, -, -, -, -, -, -, -, -, -,	<u> -</u>			24,000,000	3,000	1	
25-Aug-03	21	32		8,000,000	61,000	8	
25-Aug-00	 			3	29,000	0	
				I			
	 						

Note: 7 Aug 03 sample #7 was challenged at 2X dose of #6 sample

Results in Log Format No results excluded

cluded					Klebsiella t		
				Run Results - CFU			
Run Date	MPT "age" (weeks)	MPT Run #	Sample #	Challenge Dose	T30	T60	T90
31-Mar-03	0	10	2	6.70		0.0	
01-Wai-00			3	6.70		0.0	
15-Apr-03	2	13	4	6.69	2.40	0.0	0.0
13-401-00			5	6.69	2.15	0.0	0.0
30-Apr-03	4	15	4	6.94	3.38	0.0	0.0
307401700		12	5	6.94	3.36	0.0	0.0
2-May-03	4	16	4	6.70	2.00	0.0	0.0
Z-Way-US			5	6,70	3.72	0.0	0.0
6-May-03	5	17	4	6.68	0.60	0.0	0.0
O-IVIAY-00			5	6.68	2.32	1.73	0.0
20-May-03	7	20	4	6.84	0.00	0.0	0.0
ZU-WINY-US	 	<u></u>	5	6.84	1.92_	0.0	0,0
29-May-03	7	21	4	6.65	2.15	0.0	0,0
Z9-IVIAY-U3		· · · · · · · · · · · · · · · · · · ·	5	6,65	2.36	0.0	0.0
17-Jun-03	11	22	4	7.04	2.93	0,0	0.0
17-50H-03	 		5	7.04	3.43	0.0	0.0

0.0 0.0 0.0 0.0 0.0 0.00 1.30 0.00 0.90 0.0 2.93 7,00 15 15-Jul-03 7.00 7.08 3.64 2.94 18 7-Aug-03 3.48 7,38 6.90 4.79 4.48 32 21 25-Aug-03 6.90

Figure 6B

Note: 7 Aug 03 sample #7 was challenged at 2X dose of #6 sample Note: For log value, a "1" is reported as 0.00 and a "0" is reported as 0.0 and will be indicated as ">" in log reductions

pH - 7.84 Turb - 0.57 NTU Temp - 21.5 °C

Conductivity - 199.8 micromhos/cm Total Chlorine - <0.03 mg/L

TDS - 144.6 mg/L Conductivity - 217 micromhos/cm Total Chlorine - <0.03 mg/L

Log Reductions No Results Excluded

xcluded				Klebsiella terrigena					
				Run Results - CFU	s/mL by co				
Run Date	MPT "age" (weeks)	MPT Run #	Sample #	Challenge Dose	T30	T60	T90		
31-Mar-03	0	10	2	6.70		6.70			
31-Mai-05			3	6.70		6.70			
15-Apr-03	2	13	4	6.69	4.29	6.69	6.69		
13-AD1-03			5	6.69	4.54	6.69	6,69		
30-Apr-03	4	15	4	6.94	3,56	6.94	6,94		
30-Api-03			5	6.94	3.58	6.94	6,94		
2 May 02	4	16	4	6.70	4,70	6.70	6.70		
2-May-03			5	6,70	2.98	6.70	6.70		
C May 02	5	17	4	6.68	6.08	6.68	6.68		
6-May-03			5	6,68	4.36	4.95	6,68		
00 14- 00	7	20	4	6.84	6.84	6.84	6.84		
20-May-03	 		5	6.84	4.92	6.84	6.84		
00 14 02	7	21	4	6.65	4.50	6.65	6.65		
29-May-03	 		5	6,65	4.29	6.65	6.65		
47.1 00	11	22	4	7.04	4.11	7.04	7.04		
17-Jun-03_	 		5	7.04	3.61	7.04	7,04		
	15	24	4	7.00	4.07	7.00	7.00		
15-Jul-03	15		5	7.00	3.36	7.00	7.00		
7.100	18	29	6	7,08	4.14	5.78	7.08		
7-Aug-03	10		7	7.38	3,90	7.38	7.38		
	21	32	5	6.90	2.11	6.00	6.90		
25-Aug-03	21	 	6	6.90	2.44	6.90	6.90		
	 		 						
	+	 	 						
			1						
	 	 	1						

Note: 7 Aug 03 sample #7 was challenged at 2X dose of #6 sample

Log Format	noulte at 60 minutes ex	rluded			Klebsiella t		
Aug / Tiyer ii	esults at 60 minutes ex	Judea		Run Results - CFU	s/mL by co		min)
Run Date	MPT "age" (weeks)	MPT Run #	Sample #	Challenge Dose	T30	T60	T9
31-Mar-03	0	10	2	6.70	1	0.0	
31-Wai-03			3	6,70		0.0	
15-Apr-03	2	13	4	6.69	2,40	0.0	0.0
10-101-00			5	6.69	2.15	0.0	0.0
30-Apr-03	4	15	4	6.94	3.38	0.0	Q.
30-100	 		5	6.94	3.36	0.0	0,
2-May-03	4	16	4	6,70	2,00	0.0	0.
Z-IVIAY-00		1	5	6.70	3.72	0.0	0,
6-May-03	5	17	4	6.68	0.60	0.0	0.
0-iviay-00	1		5	6.68	2.32		0.
20-May-03	7	20	4	6.84	0.00	0.0	Q,
ZU-MBY-US	 	 	5	6.84	1.92	0.0	0,
00 14 02	7	21	4	6,65	2.15	0.0	0.
29-May-03		 	5	6.65	2.36	0.0	0.
17-Jun-03	11	22	4	7.04	2.93	0,0	0
17-3011-03	 		5	7.04	3.43	0.0	0
15-Jul-03	15	24	4	7.00	2.93	0.0	0
10-001-00	 		5	7.00	3.64	0.00	0
7-Aug-03	18	29	6	7.08	2.94		0
1-1449-00	ļ		7	7.38	3.48	0.00	0
25-Aug-03	21	32	5	6.90	4,79	0.90	0.
2370g-05	 	 	6	6.90	4.46	0,00	0.
	 	1	1				
		 	1				L
	1	†	1			1	L
	 	 				1	

Log Reductions May 6 and Aug 7 "flyer" results at 60 minutes excluded

NS on 7 "flver" re	esults at 60 minutes ex	bebut			(lebsiella (
ig / ilye: it	Salta at on thin to the			Log Reductions	by Contac	ct Time (mir	iutes)
Run Date	MPT "age" (weeks)	MPT Run #	Sample #	Challenge Dose	T30	T60	T90
31-Mar-03	0	10	2	6.70		6.70	
31-Mai-05			3	6.70		6.70	
15-Apr-03	2	13	4	6,69	4,29	6.69	6.69
15-Api-03			5	6.69	4.54	6.69	6,69
30-Арг-03	4	15	4	6.94	3.56	6.94	6.94
30-Abi-02		- 10	5	6,94	3,58	6.94	6,94
2 May 03	4	16	4	6.70	4.70	6,70	6.70
2-May-03			5	6,70	2.98	6.70	6.70
0.14 02	5	17	4	6,68	6,08	6.68	6,68
6-May-03	 		5	6.68	4.36		6.68
00.11003	7	20	4	6.84	6.84	6.84	6.84
20-May-03	 		5	6,84	4.92	6.84	6,84
00 May 02	7	21	4	6.65	4,50	6.65	6.65
29-May-03	 		5	6.65	4.29	6.65	6.65
47 Jun 02	11	22	4	7.04	4,11	7.04	7.04
17-Jun-03	 		5	7.04	3,61	7.04	7.04
15-Jul-03	15	24	4	7.00	4.07	7.00	7.00
13-301-03	10		5	7.00	3,36	7.00	7.00
7-Aug-03	18	29	6	7.08	4.14		7.00
1-Aug-05	 		7	7.38	3.90	7.38	7.38
25-Aug-03	21	32	5	6,90	2.11	6.00	6.90
25-Aug-03	 	 	6	6,90	2.44	6.90	6.90
	 		T			I	L
	ļ	 	1				
	· 	 					
	 	 	 -				

Note: 7 Aug 03 sample #7 was challenged at 2X dose of #6 sample

Graph Values - May 6 and August 7 "flyer" results at 60 minutes excluded

30 (min	60 min	90 min	challenge level	
31-Mar-03		6.7		6.7	
31-14(0)-00		6.7		6.7	
15-Apr-03	4.29	6.69	6,69	6.69	
107401 00	4.54	6.69	6.69	6,69	
30-Apr-03	3,56	6.94	6.94	6.94	
30 / Bi 30	3,58	6.94	6.94	6.94	
2-May-03	4.7	6,7	6.7	6.7	
2-11-00	2.98	6,7	6.7	6.7	
6-May-03	6.08	6.68	6,68	6.68	
<u> </u>	4,36		6.68	6.68	
20-May-03	6,84	6.84	6.84	6.84	
ZO MILLY US	4.92	6.84	6.84	6.84	
29-May-03	4.5	6.65	6.65	6.65	
20 11121	4.29	6,65	6.65	6,65	
17-Jun-03	4.11	7.04	7.04	7.04	
77 0011 00	3.61	7,04	7.04	7.04	
15-Jul-03	4.07	7	7	7	
10 00, 02	3.36	7	7	7	
7-Aug-03	4.14		7.08	7.08	
778.9 00	3.6	7.38	7.38	7.38	
25-Aug-03	2,11	6	6.9	6.9	
207449 50	2,44	6.9	6.9	6.9	

Average values - 1 per date: for graphing Chart 1

31-Mar-03		6.7		6.7	0
	4,415	6.69	6.69	6.69	2
15-Apr-03	3.57	6.94	6.94	6.94	4
30-Apr-03	3.84	6.7	6.7	6.7	4
2-May-03	5.22	6.68	6,68	6.68	5
6-May-03	5.88	6.84	6.84	6.84	7
20-May-03 29-May-03	4,395	6.65	6.65	6.65	7
17-Jun-03	3.86	7.04	7,04	7.04	11
15-Jul-03	3.715	7	7	7	15
7-Aug-03	3.87	7.38	7.38	7.38	18
25-Aug-03	2.275	6.4	6.9	6.9	21

Figure 6C

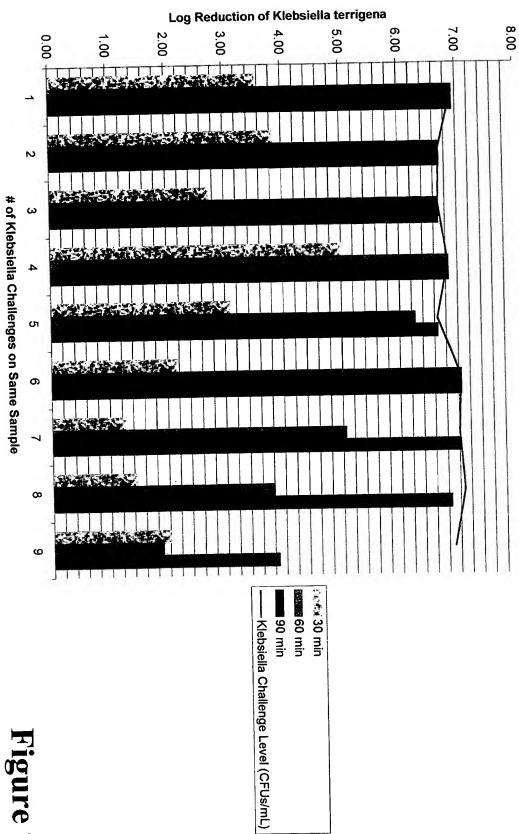


Figure 7

Filename: Repetitive Challenge Summary Version1.xls Filedate: 11 August 2003

Results in Scientific Notation No results excluded

Figure 8A

			ebsiella terrigena					
			mL by contact time	Run Results - CFUs/				
T120	T90	T60	T30	Challenge Dose	Sample #	MPT Run#	# Of Inoculations	Run Date
	0	0	2.4 x 10^3	8.7 x 10^6	4	15	1	30-Apr-03
	0	0	2.3 x 10^3		5			00 7 (pr 00)
	0	0	9.9 x 10^1	5.0 x 10^6	4	16	2	2-May-03
	0	0	5.3 x 10^3		5			2 11.0, 00
	0	0	1.6 x 10^4	4.8 x 10^6	6	17	3	6-May-03
	0	0	5.2 x 10^3		7			O Way oo
]	0	0	5.0 x 10^1	6.9 x 10^6	6	20	4	20-May-03
	0	1.8 x 10^1*	1.0 x 10^2		7	 		20 may 00
	0	2	1.4 x 10^5	4.5 x 10^6	6	21	5	29-May-03
	0	3	1.0 x 10^2		7			20 may co
	1	0	4.2 x 10^4	1.1 x 10^7	6	22	6	17-Jun-03
	0	1	1.4 x 10^5		7		`	17-547-00
	0	1.0 x 10^2	7.0 x 10^5	1.0 x 10^7	6	24	7	15-Jul-03
7	0	8.2 X 10^1	4.6 x 10^5*		7			10-001-00
	3	1.5 x 10^3	4.3 x 10^5	1.2 x 10^7	6	29	8	7-Aug-03
	1	2.4 x 10^3	4.8 x 10^5		7	 		7-Aug-05
5.3 x 10	2.0 x 10^3	6.8 x 10^4	7.6 x 10^4	8.0 x 10^6	5	32	9	25-Aug-03
	6.2 x 10^2	1.6 x 10^5	•		6			23-Aug-00
						 		
						 		
				-		 		
						 		ļ
						 		
				 		 		

Results in Number Format No results excluded

					lebslella terrigena		
				Run Results - CFUs		e (min)	
Run Date	# Of Inoculations	MPT Run #	Sample #	Challenge Dose	T30	T60	T90
30-Apr-03	1	15	4	8,700,000	2,400	0	0
			5		2,300	0	0
2-May-03	2	16	4	5,000,000	99	0	0
1			5		5,300	0 1	0
6-May-03	3	17	6	4,800,000	16,000	0	0
o way oo		-	7		5,200	0	0
20-May-03	4	20	6	6,900,000	50	0	0
20-Iviay-00			7		100	18	0
29-May-03	5	21	6	4,500,000	140,000	2	0
29-Way-03		 	7		100	3	0
17-Jun-03	6	22	6	11,000,000	42,000	0	1
17-3411-00			7		140,000	1	0
15-Jul-03	7	24	6	10,000,000	700,000	100	0
10-001-00		 	7		460,000	82	0
7-Aug-03	8	29	6	12,000,000	430,000	1,500	3
7 7 tag 00		 	7		480,000	2,400	1
25-Aug-03	9	32	5	8,000,000	76,000	68,000	2,000
LO / lug Go			6		-	160,000	620
		 	 				
			 	T			
		 	 				
		+	 	††			
		 	 			1	
		 	 			1	

Results in Log Format No results excluded

				Klebsiella terrigena						
				Run Results - CFUs/n	nL by contact tim	e (min)				
Run Date	# Of Inoculations	MPT Run #	Sample #	Challenge Dose	T30	T60	T90			
30-Apr-03	1	15	4	6.94	3,38	0.0	0.0			
00 / 10: 00			5	6.94	3.36	0.0	0.0			
2-May-03	2	16	4	6.70	2.00	0.0	0.0			
2-11129-00		 	5	6.70	3.72	0.0	0.0			
6-May-03	3	17	6	6.68	4.20	0.0	0.0			
o may do			7	6.68	3.72	0.0	0.0			
20-May-03	4	20	6	6.84	1.70	0.0	0.0			
20 1110) 00		 	7	6.84	2.00	1.26	0.0			
29-May-03		21	6	6.65	5,15	0.30	0.0			

		7 T	6.65	2.00	0.48	0.00
	 				0.0	0.00
6	22	 			0.00	0.0
		 ;+				0.0
7	24					0,0
						0.48
8	29	6				0.00
		7				3.30
9	32	5		4.88		2.79
		6	6.90		5.20	2.13
						<u> </u>
						<u> </u>
		7 24 8 29	7 24 6 7 7 8 29 6 7 7 9 32 5	7 7.04 7 24 6 7.00 7 7.00 8 29 6 7.08 9 32 5 6.90	6 22 6 7.04 4.62 7 7.04 5.15 7 24 6 7.00 5.85 7 7.00 5.66 8 29 6 7.08 5.63 7 7.08 5.68 9 32 5 6.90 4.88	6 22 6 7,04 4.62 0.0 7 7,04 5.15 0.00 7 24 6 7,00 5.85 2.00 7 7,00 5.66 1.91 8 29 6 7,08 5.63 3.18 7 7,08 5.68 3.38 9 32 5 6.90 4.88 4.83

1.72 0.00

Log Reductions
Excluded May 20, T60 result - apparent plate contamination on Sample #7

			l	Klebsiella terrigena				
				Log Reductions by Contact Time (minutes)				1
<u> </u>	# Of Inoculations	MPT Run#	Sample #		T30	T60	T90	T120
Run Date	# Of moculations	15	4	6.94	3.56	6.94	6.94	ل
30-Apr-03	1	13	5	6.94	3.58	6.94	6.94	
	2	16	4	6.70	4.70	6.70	6.70	_
2-May-03		10	5	6.70	2.98	6.70	6.70	
	3	17	6	6.68	2.48	6.68	6.68	
6-May-03			7	6.68	2.96	6.68	6.68]
		20	6	6.84	5.14	6.84	6.84	
20-May-03	4	20-	7	6.84	4.84		6.84	
	5	21	6	6.65	1.50	6.35	6.65]
29-May-03	3		7	6.65	4.65	6.17	6.65	
	6	22	6	7.04	2.42	7.04	7.04	_
17-Jun-03			7 7	7.04	1.89	7.04	7.04	
		24	6	7,00	1.15	5.00	7.00	
15-Jul-03	7		7	7.00	1.34	5.09	7.00	
	8	29	6	7.08	1,45	3,90	6,60	
7-Aug-03	8	23	7	7.08	1.40	3.70	7.08	
	9	32	5	6.90	2.02	2.07	3,60	5,1
25-Aug-03		+	6	6.90		1.70	4.11	6.9
		 	┼─ॅ─	+ 				
		+	 	 				
		+	 					
		+	 					
		 	 					
			 	 				

Graph values May 20 sample #7 resuit excluded

·	30 min	60 min	90 min	challenge level
30-Apr-03	3.56	6.94	6.94	6.94
30 rp. 30	3.58	6.94	6.94	6.94
2-May-03	4.70	6.70	6.70	6.70
2	2,98	6.70	6.70	6.70
6-May-03	2,48	6.68	6,68	
J	2.96	6.68	6.68	6.68
20-May-03	5,14	6.84	6.84	6.84
20 1112) 55	4.84		6.84	6.84
29-May-03	1,50	6.35	6.65	6.65
Zo way so	4.65	6.17	6.65	6.65
17-Jun-03	2.42	7.04	7.04	7.04
17 00.11 00	1,89	7.04	7.04	
15-Jul-03	1.15	5.00	7.00	7.00
	1.34	5.09	7.00	
7-Aug-03	1,45	3.90	6.60	7.08
77.09 00	1,40	3,70	7.08	
25-Aug-03	2.02	2.07	3.60	6.90
207128		1.70	4.11	6.90
H				
				
				
 				

Average values - 1 per date - for graphing Chart 1

	30 min	60 min	90 min	challenge level	#
30-Apr-03	3.57	6,94	6.94	6.94	

of Kleb Challenges

Figure 8B

2-May-03	3.84	6.70	6.70	6.70
6-May-03	2.72	6.68	6.68	6.68
20-May-03	4.99	6.84	6.84	6.84
29-May-03	3,08	6.26	6.65	6.65
17-Jun-03	2,16	7.04	7.04	7.04
15-Jul-03	1.25	5.05	7.00	7.00
7-Aug-03	1.43	3.80	6.84	7.08
25-Aug-03	2.02	1.88	3.86	6.90
				
				

Figure 8C